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RELIABILITY OF THE U.S. ARMY
AMBULATORY CARE DATA BASE (ACDB) STUDY:
METHODOLOGY AND CLINICAL FINDINGS

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RELIABILITY OF THE U.S. ARMY AMBULATORY CARE DATA BASE (ACDB) STUDY: METHODOLOGY AND CLINICAL FINDINGS

SUMMARY

During the study period, January 1986 - September 1987, researchers collected data on 3.1 million patient encounters (visits) at six participating Army hospitals. After the data collection phase of the ACDB study, study team members conducted a comprehensive 5 month review to determine a data reliability score for each participating hospital and clinical specialty. The study team reviewed over 9,000 randomly selected visits with their supporting medical records. They evaluated variables of interest with a specially developed scoring instrument which they used to assign numerical weights for the selected variables.

Reliability mean scores were computed for each hospital and clinic for the two data collection phases. Phase One (I) data was collected during the period January 1986 through April 1987. Phase Two (II) was accomplished from May through September 1987 using modified versions of the original data collection forms. The reliability mean score for the Phase I data was 8.57 (9 was the maximum score) with a standard deviation of 1.27 (n=7,589). The reliability mean score for the Phase II data was 8.50 with a standard deviation of 1.31 (n=1,426). These results indicate a high degree of reliability between the key variables on the ACDB visit forms and the corresponding, official patient medical record.

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visits and made the tedious work more palatable. The Nurse Methods Analysts assigned to our activity during the reliability study (LTCs Valerie Biskey, Bonnie Jennings, and Ruth Rea) provided helpful clinical evaluations. Dr. A. David Mangelsdorff helped evaluate behavioral science records. At each of the six hospitals surveyed, members of the Patient Administration and Clinical Support Divisions were extremely helpful in facilitating the accomplishment of this massive task.

INTRODUCTION

History and Purpose

Recognizing the requirement for an ambulatory care data base, the Army Medical Department began planning in 1984 for a multi-year study to establish an outpatient data base. Based on the results of a 6-month pilot study completed at Fox Army Community Hospital, Redstone Arsenal, Alabama (Misener & Gilbert, 1984), the ACDB Study was formulated to collect clinical data from patient encounters (visits). During a 21-month period from January 1986 to September 1987, over 3.1 million patient encounters were recorded.

This report examines the reliability of the clinical data obtained from the six participating Army hospitals and their respective clinical specialties. A quantitative measure of the reliability of the data was determined to be a prerequisite to the subsequent analysis by clinical specialty.

Background

The development of medical classification systems is not a recent innovation (e.g., International Classification of Diseases, 1979). However, the application of such systems to hospital management and reimbursement

mechanisms is fairly recent. Specifically, Diagnostic Related Groups (DRGs) were developed for this purpose (Fetter, Averill, Lichtenstein & Freeman, 1984). The quest for more efficient management and more equitable reimbursement systems led to the development of other similar methodologies. These include Ambulatory Visit Groups (AVGs), Resource Utilization Groups (RUGs), Products of Ambulatory Care (PACs), and others (Kelly, Fillmore, & Tenan, 1988). Central to the development of these and other classification systems is the accurate measurement of care provided. This accuracy of measurement, more commonly referred to as reliability of data, is not identified with glamorous research. It is, however, essential for confidence in results obtained from any subsequent work (Richards, Lurie, Rodgers, & Brook, 1988).

In order to determine the reliability of the Army's ACDB, a comprehensive reliability study was conducted at all six test hospitals and included the outpatient specialties which were part of the study. Hospitals participating in the study were Brooke Army Medical Center (BAMC), Fort Sam Houston (San Antonio), Texas; Bayne-Jones Army Community Hospital, Fort Polk (Leesville), Louisiana; Womack Army Community Hospital, Fort Bragg (Fayetteville), North Carolina; Fox Army Community Hospital, Redstone Arsenal (Huntsville), Alabama; Blanchfield Army Community Hospital, Fort Campbell (Clarksville, Tennessee), Kentucky; and Moncrief Army Community Hospital, Fort Jackson (Columbia), South Carolina.

Objectives

The objectives of this study were to

- 1. Determine reliability indices (scores) for each participating hospital and clinic.
 - 2. Determine if the reliability indices for the hospitals and clinics

were significantly (statistically) different.

3. Determine the implications of the computed reliability indices on future data analysis planning.

METHODOLOGY

Overview

The ACDB Study (Georgoulakis et al, 1988) was conducted as the ambulatory portion of the Tri-Service Performance Measurement Study (PMS) (Coventry, 1984). The purpose of the PMS was to evaluate current measures of AMEDD health care delivery performance and, as required, to develop improved measures of workload performance and a data capture system which would more accurately reflect actual resource use. In the ambulatory portion of the study, outpatient data were collected in over 70 clinical specialties at six Army medical treatment facilities. During the nearly 2-year collection period, a total of 3,108,741 patient encounters (visits) were documented (Table 1, page 19).

The data contained in these visits were grouped into three categories: clinical variables, patient demographic variables, and health care provider variables. Clinical variables included clinic/Uniform Chart of Account (UCA) code, diagnoses, procedures performed, time spent with patient, type of provider, place of visit, and new/follow-up patient. Demographic variables were composed of items such as social security number, family member prefix (FMP) (a code distinguishing family members being treated), birthdate, and type of beneficiary (active duty, retiree, family member, or civilian emergency). Some of the health care provider variables included type of provider (physician, nurse, social worker, etc.), whether or not a second provider was required, and reason for the second provider (teaching, consultation, supervision, co-therapist).

Procedure

During the data collection portion of the ACDB study, members of the study team made several visits to each of the participating hospitals in the study to informally review the quality of collected data. Appendix A contains a sample data collection (bubble) form. At the conclusion of the ACDB study, researchers conducted a more detailed and formalized review of the data. A standardized scoring instrument was designed for an accurate and objective assessment of the quality of data. The following criteria were used for developing the scoring instrument:

- 1. The instrument should contain the most important data elements on the patient encounter form.
- 2. Data elements to be verified must be a part of the supporting medical or clinical record.
- 3. A level of measurement should be used that would allow for calculations of reliability score means and standard deviations.
- 4. The scoring instrument must be compatible with both data collection phases (original Phase I and revised Phase II).
 - 5. The scoring instrument should be concise and easy to use.

The study group employed a modified Delphi technique (Polit and Hungler, 1983) to evaluate variable priority and to insure that the most critical items on the patient encounter form would be included in the scoring instrument. The project staff reviewed all the data elements that were included in either the original or revised patient encounter forms. Data elements were divided into two categories, administrative or clinical. Each of the elements was discussed, rank ordered, and assigned a relative value in terms of importance to the study. Table 2, page 19, contains a list of variables with corresponding weighted values. Using this weighting process, the study group selected three administrative and two clinical data

variables for the reliability check. Data elements representing the administrative area were comprised of the patient's social security number and family member prefix (PATID), the date of the patient encounter/visit (VDATE) and the clinic (UCA) code. The clinical items consisted of the primary diagnosis (DX) or reason for visit, and the health care provider identification code (PROVID) which represented the first initial of the provider's last name and last four digits of his/her social security number.

Numerical weights applied to the variables were sensitive to the clinical importance of the data collected. Consequently, a weight of "4" applied to the cited diagnosis reflected the higher magnitude associated with this variable versus a weight of "1" for the correct date of the visit. A copy of the scoring instrument is contained in Appendix B.

Prior to embarking on the full-scale reliability project, the project team conducted a pilot study at BAMC, Fort Sam Houston, Texas. BAMC was selected as the pilot project site because it is collocated with the study group. The major objectives of the pilot project were to (1) evaluate the reliability and appropriateness of the scoring instrument, (2) determine the most appropriate methodology for securing the supporting medical records, and (3) develop practical estimates of the amount of time, personnel, and associated costs needed to conduct the full-scale reliability project. To expedite completion of the pilot project, eight clinics were selected:

- 1. Dermatology
- 2. Emergency Room
- 3. Gynecology
- 4. Internal Medicine
- 5. Ophthalmology
- 6. Orthopedics

- 7. Pediatrics
- 8. Troop Medical Clinic

The study group selected these clinics for the pilot project because of the (1) availability of the clinical specialty at each of the study sites, (2) manageability of the number of clinics selected, and (3) diversity of clinic type so that no outpatient specialty was overly represented in the pilot project (i.e., not all medical specialties, surgical specialties, or primary medicine clinics).

Following the selection of the clinics, the study group trained all health care members of the reliability team on the use of the scoring instrument. This training included a thorough explanation of the specific procedures and guidelines to be used in scoring the information gathered from the randomly selected medical records. The following scoring rules were established regarding the comparison of medical records and the randomly selected data base encounters:

- 1. Variable PATID Either the data on variable PATID in the medical record exactly matched the printout from the bubble form or it was judged incorrect.
- 2. Variable VDATE A variation of two clinic days either before or after the date of visit were authorized to allow for charting and processing of the data collection form. If the date exceeded the 2-day rule, it was judged incorrect.
 - 3. Variable UCA The code either matched or it was judged incorrect.
- 4. Variable PROVID Either the provider identification code matched or it was judged incorrect.
- 5. Variable DX Clinical judgments concerning differences between the ACDB visit form diagnoses and the medical record diagnoses were occasionally required. For example, illnesses coded as Upper Respiratory Infection,

Acute Cold, and Rhinitis were often charted in the medical record as Flu Symptoms and Inflammation of Mucous Membrane of the Nose. In such cases, the Principal Investigator, in consultation with staff physicians and nurses, made the final decision on how the entry should be scored. These procedures were designed to insure uniform scoring.

Once training on the scoring instrument had been completed, the study group determined the number of records (sample size) to review for each specialty. Since a sample size of fewer than 30 is usually considered too small to accurately represent a sampling distribution (Dowie & Heath, 1974), a sample size of at least 30 was used.

To increase the probability that 30 records would be available for review, lists containing at least 200 patient encounters were generated for each clinic using a random numbers with replacement computer program contained in the mainframe FOCUS Data Base Management System. The rationale for generating such large lists was to accommodate the possibility that a patient's record could have been pulled for an outpatient appointment or that the patient's record had been transferred with the patient to another military installation.

Two types of random lists were generated. The first list was designed for the study group and the second for records room personnel. The study group's random list contained the following information: patient identification code, clinic/UCA code, date of visit, health care provider identification code, clinic name, diagnoses codes (primary and secondary) with written descriptions of the diagnoses, and a single procedure code (if performed) with a written description of the procedure. Information from this list was used by the reliability study team for a comparison with the actual entry in the medical record. The second random list was used as a

record pull list by medical records room personnel. This list contained the patient's identification number, clinic/UCA code, and the visit date.

In order to minimize the disruption of duties in the BAMC medical records room, prior arrangements were made through the Patient Administration Division to have the medical records provided to study personnel during the evening hours. This required that medical records personnel work overtime locating the necessary records, but it proved to be the most satisfactory arrangement for all concerned. Upon receipt of the medical records, study personnel reviewed and scored the identified entries against the computer printouts and immediately returned the records to the records room. Since the medical records room personnel knew which records were being reviewed by study personnel, medical records could be easily retrieved and provided to patients, if needed.

Limitations

The nonavailability of selected outpatient medical records was a limitation in the reliability study effort. Nonavailability could have been caused by a patient's clinical appointment or relocation, personal retention of records, selection of the record for a quality assurance audit, or other reasons. Records which could not be immediately located by patient administration personnel were bypassed and the next randomly generated record was used. An assessment of the number and reason for the unavailable records was beyond the scope of the reliability project.

Patient visits associated with brief care encounters for immunizations, prescription refills and EKGs recorded on a Short Visit Form were excluded from the review. Additionally, if the diagnosis No Problem Noted (ICD-9-CM Code V655) was recorded in the database as the selected diagnosis, that medical record was not used in the reliability evaluation. Various health

care providers had interpreted this diagnosis differently and used it for reasons other than those intended by the developers of the study.

RESULTS

Pilot Study

During the pilot study, 347 Phase I (January 1986 through April 1987)

BAMC patient encounters were reviewed for the eight clinics selected. The expanded level of encounters was considerably higher than initially planned (347 versus 240). Two factors contributed to this increase. Some records contained multiple patient visits, and all medical record entries available to the study team were reviewed. Furthermore, the addition of these records enabled the study group to conduct a more thorough evaluation of both the scoring instrument and the records review process.

An analysis of the pilot study data revealed that the BAMC clinics obtained a mean score of 10.62 with a standard deviation of 1.14 and a score range of 5-11 (maximum score = 11). These preliminary results substantiated the reliability of the scoring instrument and indicated that the data in the ACDB could be validated for accuracy. Additionally, the practical experience gained from the pilot project supported not only the feasibility of a full scale reliability project but identified areas for improvement. A complete individual clinic analysis of the pilot data is contained in Appendix C.

During the pilot study, the evaluation of the variable PATID (patient ID) was noted to be totally dependent upon the availability of the supporting medical record. Records which were available had an exact match on this variable. It was concluded that the PATID variable was acting as a "gate" and therefore would not be a suitable variable for the subsequent and comprehensive reliability study.

Comprehensive Reliability Study

Upon completion of the Pilot Reliability Study, a detailed evaluation of the methods, results, and problems encountered was conducted. A full scale reliability effort was conducted during the period October 1 through December 15, 1987 which included an on-site visit to each of the six hospital locations. Reliability data were collected for both phases of the ACDB project. Data from all hospital sites were sampled, and 9,015 visits were examined in detail. Table 3 on page 20 summarizes the number of visits compared in the reliability study.

As was done in the pilot reliability study, variables from each visit collected in the ACDB were compared with medical records for accuracy. The variables were the Visit Date (VDATE), Clinic Code (UCA), Provider Identification (PROVID) and Primary Diagnosis (Dx). If a value for a variable was in error or missing, a zero score was given to it. Correspondingly, if the value for the variable was correct, the assigned weighted value was recorded.

Reliability Study Results

A total score for each randomly selected visit was obtained by summing the weighted values for each of the four variables examined in this study.

A perfect score for a patient visit was nine. A comparison of the visit mean scores by hospital site and phase is located in Table 4, page 21.

The combined data error rate (based upon selected visits and records) for both phases of the study was 3.9%. The Phase I error rate was 3.8% or 1,154 out of a total of 30,356 possible entries. The Phase II error rate was 4.3% or 247 errors out of a total of 5,704 entries examined. Table 5 on page 22 illustrates the error rates for the four study variables by data collection phase.

A statistical comparison of the visit mean scores by hospital site and phase was accomplished using a General Linear Model (GLM) analysis of variance. The GLM procedure (SAS, 1985) was selected due to the unbalanced data cells among clinics and hospital sites. The SAS GLM procedure uses the method of least squares to fit a general linear model. Although the independent variables used (VDATE, UCA, PROVID, and DX) were categorical, the SAS system converts these variables into dummy variables so that the linear model can be used.

There are significant differences in mean scores among the six hospital sites for Phase I (F value = 109.45 with df = 7418 and p = .0001). Results of a Duncan multiple range test (p = .05) are found in Table 6 on page 23. Duncan's Test is a powerful multiple comparison test and is popular among many researchers because there is a high probability of declaring a difference when there is actually a difference between the score means.

A significant difference was also found between the mean scores of Brooke Army Medical Center and Fort Campbell, the locations of the two hospitals reviewed in Phase II (F value = 13.56 with df = 1378, p = .0001. The Duncan test results (p = .05) are depicted in Table 7 on page 23.

Additionally, there was a significant difference between Phase I and Phase II mean scores for BAMC, one of the two hospitals participating in both phases of the study (F value = 33.83, df = 2423, p = .0001). Results from the Duncan multiple range test (p = .05) are provided in Table 8, page 24.

There was no significant difference in mean scores between phases I and II for the Fort Campbell site (F value = 0.77, df = 1164, p = .3810). Duncan multiple range test (p = .05) results are found in Table 9, page 24.

Clinic Comparisons Between Hospitals

In addition to the mean scores by site and phase, researchers explored the data from the 62 individual clinical specialties represented in the reliability evaluation. Although this exploration resulted in a sizable number of additional appendices, the potential benefits were determined to be valid. Convenient lists of clinic mean scores by site and phase are located in Appendices D (Phase I) and E (Phase II). Based on the range of scores, significant differences among the participating clinics were expected. Statistically significant differences (alpha = .05) were found for individual clinics during each phase of data collection.

Since individual comparisons among the participating clinics will undoubtedly be viewed with interest by the hospital test sites, the Duncan multiple range test was again used to illustrate which clinics displayed significant differences as compared to their respective counterparts at other medical treatment facilities. Appendix F contains the Duncan test results for all clinics which were compared. (See Appendix F Table of Contents at page F-2 for specific clinic location.)

Discussion

The method used to compare the randomly selected visits with supporting medical records, cited earlier under limitations, was to discard visit cases when the medical record could not be immediately located. The medical record could be unavailable for comparison for several reasons to include clinic appointments; the patient relocated, and the medical record was sent to the new location; the patient kept the medical record; or the medical record was misplaced. In these cases, an argument for discarding the randomly selected visit and choosing another appeared to be appropriate. The potential did exist for an incorrectly recorded patient identification

code which would not pinpoint the correct medical record. However, there is no evidence to support the contention that incorrect patient identification numbers were problematic. Conceivably, the methodology used could have created a bias by overlooking or bypassing visits which could have contained incorrect data. Conversely, there was no reason to expect that targeted random records not in the outpatient medical records rooms on the days of the reliability effort were any different from those randomly targeted and subsequently located, retrieved, and scored. As has been described previously, the patient medical record has been used as the definitive source of data reliability.

The four variables selected in the reliability study are part of each patient's record. Unfortunately, the reliability study was not able to specifically review on a one-to-one basis the other fifty-seven variables (e.g., time spent with patient, number of prescriptions, pathology tests and radiography) used in the study. Study researchers contend that the reliability of the variables selected has the potential to imply a similar trend in other variables.

The most important factor regarding the entire reliability process concerns the evaluation of the statistically significant differences generated from the ANOVA. Specifically, an evaluation of the PRACTICAL SIGNIFICANCE and PRACTICAL IMPLICATIONS of these differences is certainly appropriate. No practical differences appear to exist between hospital sites and collection phase as demonstrated by the small standard deviations reported. It also should be noted that the achievement of a statistically significant result can be a function of sample size (Welch & Comer, 1988). Very small relationships or differences between groups can be statistically significant if based upon a very large sample. In the case of the analysis of reliability scores by phase, the N size for Phase I data was 7,589.

Correspondingly, the Phase II reliability sample size was 1,426. These large reliability samples helped contribute to the chance of statistically significant differences in outcomes between hospital sites and phases.

The statistically significant differences reported among clinic specialties may provide the opportunity for subsequent patient classification comparisons. Such comparisons will be important in evaluating patient level data (diagnoses and procedures) and will represent an integral part of the overall patient classification task facing the Department of Army.

CONCLUSION

Quantifiable reliability measures for each participating hospital and clinical specialty were derived from an exhaustive review of supporting patient medical records. Since data were collected during two consecutive but separate periods, the reliability measures were computed for each phase.

Analysis of variance tests showed no statistically significant differences between hospital sites, phases of data collection, and individual participating clinical specialties. However, no practical significance or practical implications were determined to exist as a result of these statistical differences. Moreover, some of the statistical differences found can be attributed to the large sample sizes (Welch & Comer, 1988).

As a result of this extensive study, the question of the accuracy of the studied variables can be answered without hesistation. These data are unquestionably of a very high quality and on a par with the best of any medical data collected and scrutinized within or outside the Army Medical Department.

RECOMMENDATIONS

Based on the results of this report, the following recommendations are made:

- 1. Develop ambulatory analysis plans to evaluate the clinical specialty data. There may be advantages to selecting certain hospital sites based upon their respective case-mix of visits; however, based upon the mean scores obtained, one or more sites need not be excluded.
- 2. Develop ambulatory analysis plans for specific clinical resource implications. Reported statistical differences among clinical specialties should be considered in the planning process. Clinical specialties with similar statistical mean scores could be utilized in preliminary modeling. Later prediction model attempts could utilize clinics with greater variance in reliability scores.

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Deputy Under Secretary (Operations Research), Department of the Army, ATTN: Mr. Walter Hollis, The Pentagon, Rm 2E660, Wash DC 20310-0200 (1) Army Study Program Management Office, ATTN: DACS-DMO/Mrs. Joann Langston, The Pentagon, Rm 3C567, WASH DC 20310-0200 (1) Deputy Assistant Secretary of Defense (Medical Resources Management), Rm 3E336, The Pentagon, WASH DC 20310-2300 (1) Resource Analysis & Management System, ATTN: OASD-HA/LTC S. Baker, 3 Skyline Place, Suite 1507, 5201 Leesburg Pike, Falls Church, VA 22041-3203 (2) HQ HSC (HSCL-A), Fort Sam Houston, TX 78234-6000 (2) Dir, The Army Library, ATTN: ANR-AL-RS (Army Studies), Rm 1A518, The Pentagon, WASH DC 20310-2300 (1) Administrator, Defense Logistics Agency, DTIC, ATTN: DTIC-DDAB, Cameron Station, Alexandria, VA 22304-6145 (2)

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Dir, Joint Medical Library, DASG-AAFJML, Offices of The Surgeons General, Army/Air Force, Rm 670, 5109 Leesburg Pike, Falls Church, VA 22041-3258

HQDA (DASG-HCD-D), 5109 Leesburg Pike, Falls Church, VA 22041-3258 (2) HQDA (DASG-RMP), 5109 Leesburg Pike, Falls Church, VA 22041-3258 (2) HQDA (DASG-RMB), 5109 Leesburg Pike, Falls Church, VA 22041-3258 (2) HQDA (DASG-PSA), 5109 Leesburg Pike, Falls Church, VA 22041-3258 (2) Medical Library, BAMC, Reid Hall, Bldg 1001, Fort Sam Houston, TX 78234-6200 (1)

Stimson Library, AHS, Bldg. 2840, Fort Sam Houston, TX 78234-6100 (1)

Table 1

Patient Encounters By Hospital and Phase

Hospital	Phase I (Jan 86 - Apr 87)	Phase II ^a (May 87 - Sep 87)	Totals
Redstone Arsenal	191,867	14,780	206,647
Fort Campbell	423,117	103,068	526,185
Fort Polk	396,419	122,761	519,180
Fort Bragg	577,682	27,635	605,317
Fort Jackson	489,515	54,933	544,448
BAMC	639,984	66,980	706,964
TOTALS	2,718,584	390,157	3,108,741

^a A revised collection instrument was used for Phase II.

Table 2
Weights Assigned to Variables

Variables	Numerical Weight
PATID	2
VDATE	1
UCA	2
PROVID	2
DX	4

Table 3

Number of Visits Compared by Phase

Hospital	Phase I Visits	Phase II Visits	Total Visits By Site
BAMC	1,938	487	2,425
Fort Bragg	948		948
Fort Campbell	227	939	1,166
Fort Jackson	1,223		1,223
Fort Polk	2,153		2,153
Redstone Arsenal	1,100		1,100
TOTAL VISITS	7,589	1,426	9,015

Table 4

Mean Scores of Reliability Data for Each Site

	P	PHASE I		
Hospital	Number of Cases	Mean	S.E.	SD
BAMC	1,938	8.70	.02	0.99
Fort Polk	2,153	8.60	.03	1.33
Fort Bragg	948	8.55	.04	1.24
Fort Campbell	227	8.49	.08	1.2
Redstone Arsenal	1,100	8.48	.04	1.4
Fort Jackson	1,223	8.46	.04	1.3
Phase I Total	7,589	8.57	.02	1.2
	[PHASE II.		
Hospital	Number of Cases	Mean 	S.E.	<u>S0</u>
Fort Campbell	939	8.57	.04	1.18
BAMC	487	8.37	.07	1.5
Phase II Totals	1,426	8.50	.04	1.70

Table 5

<u>Error (Non-Match) Rates By Variable and Data Phase</u>

	PHASE Frequenc			PHASE 1 Frequency	
			VARIABLE: VDAT	E	
Errors	176	2.3		32	2.2
Correct	7,413	97.7		1,394	97.8
			VARIABLE: UCA		
Errors	45	0.6		1	0.1
Correct	7,544	99.4		1,425	99.9
			VARIABLE: PROVI	D	
Errors	388	5.1		92	6.5
Correct	7,201	94.9		1,334	93.5
			VARIABLE: DX		
Errors	545	7.2		122	8.6
Correct	7,044	92.8		1,304	93.5
TOTAL ERRORS	1,154	3.8		247	4.3
TOTAL CORRECT	29,202	96.2		5,457	95.7

Table 6

<u>Statistical Differences Between Hospital Sites for Phase I (Jan 86-Apr 87)</u>

<u>Mean Scores</u>

MEAI	NS WITH THE SAME	LETTER ARE NOT	SIGNIFICANTLY	DIFFERENT
Duncan	Grouping	Mean	N	Site
	A	8.70	1,938	BAMC
B B	A A	8.60	2,153	Fort Polk
В	C	8.55	948	Fort Bragg
B B B B	C	8.49	227	Fort Campbell
В	C	8.48	1,100	Redstone Arse
	C	8.46	1,223	Fort Jackson

Table 7

Statistical Differences Between Hospital Sites for Phase II (May-Sep 87) Mean Scores.

MEANS WITH THE SAME LETT	TER ARE NOT S	IGNIFICAN	TLY DIFFERENT
Duncan Grouping	Mean	N	Site
A	8.57	939	Fort Campbell
В	8.37	487	BAMC

Table 8

<u>Statistical Difference Between Mean Scores in Phases I and II:</u>

<u>Site = Brooke Army Medical Center</u>

MEANS WITH THE SAME LETT	ER ARE NOT S	IGNIFICANTL	DIFFERENT	
Duncan Grouping	Mean	N	Phase	
A	8.70	1,938	I	
В	8.37	487	11	

Table 9

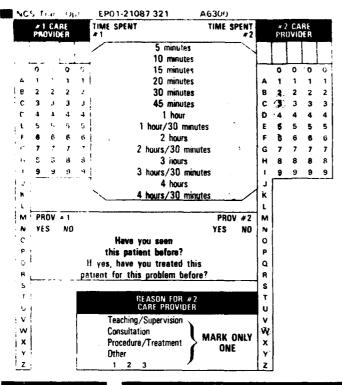
No Statistical Difference Between Mean Scores for Phases I and II:

Site = Fort Campbell

MEANS WI	TH THE SAME LETTER	R ARE NOT SIGNI	FICANTLY D	IFFERENT
Duncan	Grouping	Mean	N	Phase
······································	A	8.57	939	II
	A A	8.49	227	I

APPENDIX A
SAMPLE ENCOUNTER FORMS

PHASE I - OB/GYN PATIENT ENCOUNTER FORM



PROVIDER

PRIMARY REASON FOR THIS VISIT (MARK ONLY ONE)

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MARK ONLY ONE

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REFERRALS AND SUPPLEMENTAL DISPOSITION

Referred to other clinic Referred to VA MARK AS MANY AS APPLICABLE Referred to other Fed. Fac Referred to civilian provider Referred to civ. Health Dept Letters /Forms Supplemental care Champus for the handicapped Other Champus Quarters (military) Home (non-military) Work w/limitations Profile Specific preassigned clinic codes

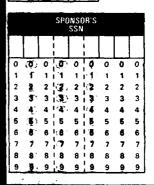
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- DO NOT as e ink or hallpoint pen
- Wake each mark heavy and black
- Fill ovals completely
- Erase cleanly any mark you wish to change
- · Make to stray pearss

ONLY ACCEPTABLE MARK DO NOT MARK IN THIS AREA

OB/GYN PATIENT

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APPOINTN STATU		
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1.	Patient seen this clinic last 12 months?
	Yes
	No
2	Patient being seen for new problem?
	Yes
	No

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PHASE II - GYN PATIENT ENCOUNTER FORM

GYN PATIENT (BCBA)

OTHER UCA

BGYA BCAA BGYN

INSTRUCTIONS

- . DO NOT use ink or ballpoint pen
- . Make each mark heavy and black.
- · Fill ovals completely.
- · Erase cleanly any mark you wish to change
- · Make no stray marks.

ONLY ACCEPTABLE MARK



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CARE PROVIDER Teaching/Supervision

Consultation Procedure/Treatment Other



MILITARY ONLY

DUTY QUARTERS 24 hours

48 hours

72 hours

PROFILE

1-3 days

4-7 days 8-14 days

> 14 days

LIMITED DUTY

NOT AVAILABLE

Medical record Lab results X-Rays



DO NOT MARK IN THIS AREA

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APPENDIX B ACDB RELIABILITY SCORING INSTRUMENT

CLINIC TITLE

ACDB RELIABILITY STUDY

SCORING INSTRUMENT

					CIRCL	E CORRI	ECT RESPO	ONSE
(1) SITE	(2) Run #	(3-5) CASE	(6-9) UCA CODE	(10) PATID	(11) VDATE	(12) UCA	(13) PROVID	(14) DX
	_			Y	Y	Y	Y	Y
				N	N	N	N	N
				M	М	M	M	M
DATE OF		ENCOUNTER		SC	N = I	ORRECT		RECT
NOTES:					<u></u>			. <u></u>

APPENDIX C
RELIABILITY OF PILOT STUDY DATA

APPENDIX C

Reliability of Pilot Study data

Brooke Army Medical Center

Clinic	n	Mean ^a	Standard Deviation	Range of Scores
Dermatology (BAPA)	45	10.97	0.14	10-11
Emergency Room (BIYA)	43	10.58	0.93	7-11
Gynecology (BCBA)	29	10.86	0.74	7-11
Internal Medicine (BAAA)	77	10.45	1.61	5~11
Ophthalmology (BBDA)	35	10.77	0.59	9-11
Orthopedics (BEAA)	33	10.27	1.37	7-11
Pediatrics (BDAA)	75	10.54	1.21	7-11
Troop Med Clinic (BHAE)	10	10.80	0.63	9-11
TOTALS	347	10.61	1.14	5-11

aMean Scores include the variable PATID (patient ID).

APPENDIX D RELIABILITY OF PHASE I DATA

APPENDIX D

Mean Scores by Site and Clinic - Phase I

CLINIC	SITE	N	MEAN SCORE
Adolescent	BAMC	44	9.00
Adolescent	Fort Polk	38	8.89
Allergy	Fort Bragg	48	8.79
Allergy	Fort Campbell	31	8.81
Allergy	Fort Jackson	39	8.54
Antepartum	Fort Jackson	36	8.33
Audiology	BAMC	42	7.88
Audiology	Fort Bragg	31	9.00
Audiology	Fort Campbell	35	8.89
Audiology	Fort Jackson	33	8.15
Audiology	Fort Polk	36	8.42
Child Guidance	BAMC	105	8.93
Child Guidance	Fort Jackson	35	8.89
Cardiology	BAMC	36	8.33
Cast	Fort Polk	17	4.76
Chemotherapy	BAMC	24	8.71
Chemotherapy	Fort Jackson	37	7.92
Comm Health Nursing	Fort Jackson	32	8.81
Comm Health Nursing	Fort Polk	50	8.98
Comm Health Nursing	Redstone Arsenal	10	9.00
Comm Mental Health	BAMC	151	8.86
Comm Mental Health	Fort Jackson	36	8.89
	n-2	Appen	dix D continues

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Dermatology	BAMC	45	8.98
Dermatology	Fort Bragg	32	8.88
Dermatology	Fort Jackson	34	8.65
Dermatology	Fort Polk	77	8.95
Exceptional Family Member Program	Fort Polk	50	7.18
EKG	Fort Jackson	19	7.63
EKG	Fort Polk	47	6.83
EKG	Redstone Arsenal	13	5.92
Endocrinology	BAMC	39	7.36
ENT	BAMC	18	8.06
ENT	Fort Bragg	31	8.94
ENT	Fort Jackson	41	6.44
ENT	Fort Polk	55	8.05
Emergency Room	BAMC	43	8.58
Emergency Room	Fort Bragg	36	8.86
Emergency Room	Fort Jackson	58	8.31
Emergency Room	Fort Polk	96	8.29
Emergency Room	Redstone Arsenal	54	8.59
Family Advocacy	BAMC	93	9.00
Family Advocacy	Fort Bragg	49	9.00
Family Advocacy	Fort Jackson	19	8.47
Family Advocacy	Fort Polk	87	8.92
Family Practice	Fort Bragg	30	9.00

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Family Practice	Fort Campbell	34	7.74
Family Practice	Fort Polk	98	8.71
Family Practice	Redstone Arsenal	74	7.47
Flight Medicine	Fort Bragg	30	8.87
Flight Medicine	Fort Polk	46	8.65
Gastroenterology	BAMC	36	8.36
General Surgery	Fort Bragg	25	8.20
General Surgery	Fort Jackson	40	8.00
General Surgery	Fort Polk	43	8.44
General Surgery	Redstone Arsenal	60	8.70
GYN	BAMC	29	8.86
GYN	Fort Bragg	31	8.65
GYN	Fort Jackson	50	8.56
GYN	Fort Polk	75	8.47
GYN	Redstone Arsenal	48	8.92
Hematology	BAMC	36	8.78
Infectious Disease	BAMC	32	8.19
Infectious Disease	Fort Bragg	31	8.94
Internal Medicine	BAMC	77	8.45
Internal Medicine	Fort Bragg	31	7.90
Internal Medicine	Fort Campbell	31	9.00
Internal Medicine	Fort Jackson	40	8.80
Internal Medicine	Redstone Arsenal	52	8.62
	n_4	Appen	dix D continues

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Midwifery	Fort Campbell	27	8.78
Nephrology	BAMC	26	8.35
Neurology	BAMC	33	8.03
Neurology	Fort Bragg	30	8.77
Neurology	Fort Polk	66	8.94
Neurology	Redstone Arsenal	51	8.22
Neuromusculoskeletal	Fort Bragg	31	8.68
Neuromusculoskeletal	Fort Jackson	37	8.84
Neurosurgery	BAMC	41	8.78
Nutrition	BAMC	21	9.00
Nutrition	Fort Bragg	30	9.00
Nutrition	Fort Jackson	45	8.42
Nutrition	Fort Polk	48	8.96
Nutrition	Redstone Arsenal	59	8.32
ОВ	Fort Campbell	29	8.86
ОВ	Fort Jackson	47	8.87
ОВ	Fort Polk	36	8.72
Occupational Health	Fort Jackson	37	8.73
Occupational Health	Fort Polk	50	9.00
Occupational Health	Redstone Arsenal	68	8.76
Ophthalmology	BAMC	35	8.77
Ophthalmology	Fort Bragg	31	8.94
Ophthalmology	Fort Jackson	37	7.92

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Ophthalmology	Fort Polk	83	8.95
Optometry	BAMC	39	8.85
Optometry	Fort Bragg	31	6.55
Optometry	Fort Jackson	58	8.66
Optometry	Fort Polk	82	8.85
Optometry	Redstone Arsenal	37	9.00
Orthopedic	BAMC	33	8.27
Orthopedic	Fort Bragg	30	8.57
Orthopedic	Fort Jackson	33	8.52
Orthopedic	Fort Polk	34	8.88
Occupational Therapy	Fort Bragg	25	7.88
Occupational Therapy	Fort Jackson	35	8.89
Occupational Therapy	Fort Polk	42	8.95
Pain	BAMC	32	8.53
Pediatrics	BAMC	75	8.55
Pediatrics	Fort Bragg	31	8.48
Pediatrics	Fort Jackson	31	8.94
Pediatrics	Fort Polk	81	8.93
Pediatrics	Redstone Arsenal	70	8.54
Physical Exam	Redstone Arsenal	55	8.89
Physical Medicine	BAMC	31	9.00
Plastic Surgery	BAMC	27	7.89
Podiatry	BAMC	36	8.78

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Podiatry	Fort Bragg	31	7.77
Podiatry	Fort Jackson	53	7.94
Podiatry	Fort Polk	30	6.30
Preventive Medicine	Fort Polk	20	8.90
Preventive Medicine	Redstone Arsenal	10	9.00
Primary Care	BAMC	42	8.95
Primary Care	Fort Bragg	31	8.29
Primary Care	Fort Jackson	30	8.87
Primary Care	Redstone Arsenal	61	8.92
Psychiatry	BAMC	124	8.99
Psychiatry	Fort Bragg	51	8.69
Psychiatry	Fort Jackson	27	8.56
Psychiatry	Fort Polk	100	8.38
Psychiatry	Redstone Arsenal	25	8.72
Psychology	BAMC	174	8.81
Psychology	Fort Bragg	50	8.52
Psychology	Fort Polk	161	8.83
Psychology	Redstone Arsenal	104	8.06
Physical Therapy	BAMC	23	9.00
Physical Therapy	Fort Bragg	31	7.23
Physical Therapy	Fort Jackson	53	8.92
Physical Therapy	Fort Polk	45	8.73
Physical Therapy	Redstone Arsenal	82	8.83
	N_7	Apper	dix D continues

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Pulmonary	BAMC	40	8.85
Respiratory Therapy	Fort Jackson	11	5.73
Rheumatology	BAMC	33	8.79
Social Work	BAMC	137	8.95
Social Work	Fort Bragg	49	8.76
Social Work	Fort Jackson	12	7.67
Social Work	Fort Polk	128	8.93
Social Work	Redstone Arsenal	43	8.95
Speech	BAMC	41	9.00
Speech	Fort Campbell	40	7.70
Speech	Fort Polk	38	8.34
Troop Medical (M)	BAMC	10	8.80
Troop Medical (M)	Fort Jackson	36	8.83
Troop Medical (M)	Fort Polk	73	8.95
Troop Medical (M)	Redstone Arsenal	60	7.80
Troop Medical (P2)	Fort Polk	48	8.83
Troop Medical (P3)	Fort Polk	40	9.00
Troop Medical (P4)	Fort Polk	86	8.56
Irology	BAMC	26	8.19
Urology	Fort Bragg	30	8.73
Urology	Fort Jackson	39	8.69
Well Baby	Fort Bragg	31	8.65
Well Baby	Fort Jackson	50	8.92

Appendix D continues

APPENDIX D (Continued)

CLINIC	SITE	N	MEAN SCORE
Well Baby	Fort Polk	40	8.90
Well Baby	Redstone Arsenal	57	8.93

APPENDIX E
RELIABILITY OF PHASE II DATA

APPENDIX E

Mean Scores by Site and Clinic - Phase II

CLINIC	SITE	N	MEAN SCORE
Adolescent	BAMC	31	8.65
Allergy	Fort Campbell	31	8.87
Audiology	Fort Campbell	31	9.00
Cardiology	BAMC	25	8.64
Chemotherapy	BAMC	32	4.41
Chemotherapy	Fort Campbell	31	9.00
Comm Health Nursing	Fort Campbell	31	8.97
Dermatology	Fort Campbell	31	8.52
Exceptional Family Member Program	Fort Campbell	31	9.00
Endocrinology	BAMC	32	9.00
ENT	Fort Campbell	29	7.62
Emergency Room	BAMC	15	7.93
Family Advocacy	BAMC	25	9.00
Family Advocacy	Fort Campbell	52	8.98
Family Practice	Fort Campbell	31	8.87
General Surgery	Fort Campbell	31	7.97
GYN	Fort Campbell	31	8.45
Infectious Disease	BAMC	30	8.63
Internal Medicine	Fort Campbell	31	8.61
Midwifery	Fort Campbell	31	8.97
Nephrology	BAMC	28	8.75

Appendix E continues

APPENDIX E (Continued)

CLINIC	SITE	N	MEAN SCORE
Neurology	Fort Campbell	31	9.00
Nutrition	Fort Campbell	27	8.78
ОВ	Fort Campbell	33	8.58
Occupational Health	Fort Campbell	31	9.00
Ophthalmology	Fort Campbell	31	7.48
Optometry	Fort Campbell	31	8.61
Orthopedics	Fort Campbell	40	8.30
Occupational Therapy	Fort Campbell	25	9.00
Pain	BAMC	36	8.56
Pediatrics	Fort Campbell	22	7.59
Physical Medicine	BAMC	32	8.63
Plastic Surgery	BAMC	27	8.30
Podiatry	Fort Campbell	31	8.26
Preventive Medicine	Fort Campbell	31	8.55
Primary Care	Fort Campbell	31	8.35
Psychiatry	BAMC	36	8.50
Psychology	BAMC	23	8.70
Physical Therapy	Fort Campbell	30	8.57
Pulmonary	BAMC	32	8.75
Rheumatology	BAMC	32	8.72
Social Work	BAMC	15	8.00
Social Work	Fort Campbell	10	9.00
Speech	BAMC	36	9.00
Speech	Fort Campbell	20	8.10 Appendix E continues

APPENDIX E (Continued)

CLINIC	SITE	N	MEAN SCORE
Troop Medical (C5)	Fort Campbell	31	8.61
Urology	Fort Campbell	31	7.84
Well Baby	Fort Campbell	31	8.94

APPENDIX F STATISTICALLY SIGNIFICANT DIFFERENCES AMONG CLINICS

APPENDIX F

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APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - INTERNAL MEDICINE

PHASE=1 CLINIC=INT MED

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES

CLINIC 1 INT MED

SITE 5 BAMC BRAG CAMP JACK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 231

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	9.0000	31	CAMP
	A A	8.8000	40	JACK
	A A	8.6154	52	REDS
	B A B	8.4545	77	BAMC
	В	7.9032	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - ALLERGY

PHASE=1 CLINIC=ALLERGY

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 ALLERGY

SITE 3 BRAG CAMP JACK

NUMBER OF OBSERVATIONS IN BY GROUP = 120

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE NOT THE EXPERIMENTWISE ERROR RATE ALPHA≈0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.8065	31	CAMP
	A A	8.7917	48	BRAG
	A A	8.5385	39	JACK

APPENDIX F - STATISTICALLY DIFFERENT DIFFERENCES - NEUROLOGY

PHASE=1 CLINIC=NEURO

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS **VALUES**

CLINIC **NEURO** SITE 4

BAMC BRAG POLK REDS NUMBER OF OBSERVATIONS IN BY GROUP = 180

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9394	66	POLK
	Ä	8.7667	30	BRAG
	B B	8.2157	51	REDS
	B B	8.0303	33	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - NUTRITION

PHASE=1 CLINIC=NUTR

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS
CLINIC 1

VALUES

NUTR

SITE

BAMC BRAG JACK POLK 4

NUMBER OF OBSERVATIONS IN BY GROUP = 203

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	21	BAMC
	A A	9.0000	30	BRAG
	A A	8.9583	48	POLK
	В	8.4222	45	JACK
	B B	8.3220	59	REDS

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - CHEMOTHERAPY, PHASE I

PHASE=1 CLINIC=CHEMO

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS

EVELS VALUES

CLINIC

1 CHEMO

SITE 2 BAMC JACK

NUMBER OF OBSERVATIONS IN BY GROUP = 61

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.7083	24	BAMC
	В	7.9189	37	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - DERMATOLOGY

PHASE=1 CLINIC=DERM

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION CLASS LEVELS VALUE VALUES CLINIC DERM 1

SITE BAMC BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 188

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9778	45	BAMC
	A A A	8.9481	77	POLK
	B A	8.8750	32	BRAG
	B B	8.6471	34	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - INFECTIOUS DISEASE

PHASE=1 CLINIC=INF DIS

GENERAL LINEAR MODELS PROCEDURE CLASS LEVEL INFORMATION

CLASS LEVEL INFORMATION
CLASS LEVELS VALUES
CLINIC 1 INF DIS
SITE 2 BAMC BRAG

NUMBER OF OBSERVATIONS IN BY GROUP = 63

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.9355	31	BRAG
	В	8.1875	32	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - SURGERY

PHASE=1 CLINIC=SURG

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION CLASS LEVELS VALUES

CLINIC 1 SURG SITE 4 BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 168

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.7000	60	REDS
	A A	8.4419	43	POLK
	A A A	8.2000	25	BRAG
	Ä	8.0000	40	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - OPHTHAMOLOGY

PHASE=1 CLINIC=OPHTH

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 OPHTH

CLINIC 1 OPHTH
SITE 4 BAMC BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 186

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9518	83	POLK
	A	8.9355	31	BRAG
	A A	8.7714	35	BAMC
	В	7.9189	37	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - ENT

PHASE=1 CLINIC=ENT

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 ENT

SITE 4 BAMC BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 145

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

LINCAN	GROUPING	MEAN	N	SITE
	A	8.9355	31	BRAG
	В	8.0556	18	BAMC
	В В	8.0545	55	POLK
	С	6.4390	41	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - UROLOGY

PHASE=1 CLINIC=UROL

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES

CLINIC 1 UROL

SITE 3 BAMC BRAG JACK

NUMBER OF OBSERVATIONS IN BY GROUP = 95

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.7333	30	BRAG
	A A	8.6923	39	JACK
	A A	8.1923	26	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - GYNECOLOGY

PHASE=1 CLINIC=GYN

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 GYN

SITE 4 BAMC BRAG JACK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 233

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.9167	48	REDS
	A A	8.8621	29	BAMC
	A A	8.6452	31	BRAG
	A A	8.5600	50	JACK
	A A	8.4667	75	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - OBSTETRICS

PHASE=1 CLINIC=OB

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS **VALUES** OB

CLINIC

SITE 3 CAMP JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 112

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.8723	47	JACK
	A A	8.8621	29	CAMP
	A	8.7222	36	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PEDIATRICS

PHASE=1 CLINIC=PEDS

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 PEDS

SITE 4 BAMC JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 288

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.9355	31	JACK
	A A	8.9259	81	POLK
A A	8.5467	75	BAMC	
	A A	8.5429	70	REDS
	A A	8.4839	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - ADOLESCENT

PHASE CLINIC=ADOL

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 ADOL

SITE 2 BAMC POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 82

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	9.00000	44	BAMC
	Â	8.89474	38	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - WELL BABY

PHASE=1 CLINIC=WBABY

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION CLASS LEVELS VALUES

CLINIC 1 WBABY

SITE 4 BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 178

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9298	57	REDS
	A A A ³⁷	8.9200	50	JACK
	Ą	8.9000	40	POLK
	A A	8.6452	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - ORTHOPEDICS

PHASE=1 CLINIC=ORTHO

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 ORTHO

SITE 4 BAMC BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 130

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.8824	34	POLK
	A B A	8.5667	30	BRAG
	B A B A	8.5152	33	JACK
	B B	8.2727	33	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES- NEUROMUSCLOSKELETAL

PHASE=1 CLINIC=NEUROMS

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION
CLASS LEVELS VALU
CLINIC 1 NEUF VALUES SITE 2 **NEUROMS** 2 **BRAG JACK**

NUMBER OF OBSERVATIONS IN BY GROUP = 68

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.8378	37	JACK
	_^	8.6774	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PODIATRY

PHASE=1 CLINIC=PODIATRY

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

VALUES CLASS LEVELS POD

CLINIC 1

BAMC BRAG JACK POLK 4 SITE

NUMBER OF OBSERVATIONS IN BY GROUP = 150

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE

ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.7778	36	BAMC
	В	7.9434	53	JACK
	B B	7.7742	31	BRAG
	С	6.3000	30	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PSYCHIATRY

PHASE=1 CLINIC=PSYCH

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 PSYCH

SITE 5 BAMC BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 327

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.9919	124	BAMC
	A A	8.7200	25	REDS
	A A	8.6863	51	BRAG
	A A	8.5556	27	JACK
	A A	8.3800	100	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PSYCHOLOGY

PHASE=1 CLINIC=PSYCHOL

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS **VALUES**

CLINIC

PSYCHOL

SITE

1 BAMC BRAG POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 489

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.8323	161	POLK
	A	8.8103	174	BAMC
	A A	8.5200	50	BRAG
	В	8.0577	104	REDS

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - CHILD GUIDANCE

PHASE=1 CLINIC=CHILD G

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 BFCA

SITE 2 BAMC JACK

NUMBER OF OBSERVATIONS IN BY GROUP = 140

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9333	105	BAMC
	Â	8.8857	35	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - COMMUNITY MENTAL HLTH

PHASE=1 CLINIC=CMHA

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

LEVELS CLASS **VALUES CMHA**

CLINIC 1

2 BAMC JACK SITE

NUMBER OF OBSERVATIONS IN BY GROUP = 187

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	8.8889	36	JACK
	A A	8.8609	151	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - SOCIAL WORK, PHASE I

PHASE=1 CLINIC=SOC WORK

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 SOC WK

SITE 5 BAMC BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 369

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	Ą	8.9535	43	REDS
	A A	8.9489	137	BAMC
	A A	8.9297	128	POLK
	A A	8.7551	49	BRAG
	В	7.6667	12	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - FAMILY ADVOCACY, PHASE I

PHASE=1 CLINIC=FAM ADV

GENERAL LINEAR MODELS PROCEDURE

1

4

CLASS LEVEL INFORMATION

CLASS

LEVELS **VALUES**

CLINIC

FAM ADV

SITE

BAMC BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 250

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	Síiã
	A A	9.0000	93	BAMC
	Ä A	9.0000	49	BRAG
	Ä	8.9195	87	POLK
	В	8.4737	19	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - FAMILY PRACTICE

PHASE=1 CLINIC=FAM PR

GENERAL LINEAR MODELS PROCEDURE

1

CLASS LEVEL INFORMATION

CLASS LEVELS

VALUES

CLINIC SITE

FAM PR BRAG CAMP POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 236

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	30	BRAG
	A A	8.7143	98	POLK
	В	7.7353	34	CAMP
	B B	7.4730	74	REDS

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PRIMARY CARE

PHASE=1 CLINIC=PRI CARE

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES
CLINIC 1 PRI CARE

SITE 4 BAMC BRAG JACK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 164

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9524	42	BAMC
	Α	8.9180	61	REDS
	A A	8.8667	30	JACK
	В	8.2903	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - TROOP MED CLINICS

PHASE=1 CLINIC=TMC (Main)

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 TMC(M)

SITE 4 BAMC JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 179

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.9452	73	POLK
	A A	8.8333	36	JACK
	Ä	8.8000	10	BAMC
	В	7.8000	60	REDS

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - OPTOMETRY

PHASE=1 CLINIC=OPTOM

CLASS LEVEL INFORMATION
CLASS LEVELS VALUES
CLINIC 1 OPTOM

SITE 5 BAMC BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 247

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	37	REDS
	A A	8.8537	82	POLK
	A A	8.8462	39	BAMC
	A A	8.6552	58	JACK
	В	6.5484	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - AUDIOLOGY

PHASE≈1 CLINIC=AUDIO

CLASS LEVEL INFORMATION CLASS LEVELS VALUES CLINIC 1 SITE 5 AUDIO

BAMC BRAG CAMP JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 177

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	9.0000	31	BRAG
	A A	8.8857	35	CAMP
В В	8 A	 8.4167	36	POLK
E	3	8.1515	33	JACK
8		7.8810	42	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - SPEECH PATHOLOGY, PHASE I

PHASE=1 CLINIC=SPEECH

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES CLINIC 1 SPEECH

SITE 3 BAMC CAMP POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 119

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	41	BAMC
	В	8.3421	38	POLK
	С	7.7000	40	CAMP

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - EMERGENCY ROOM

PHASE=1 CLINIC=ER

CLASS LEVEL INFORMATION
CLASS LEVELS VALUES
CLINIC 1 ER

SITE 5 BAMC BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 287

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.8611	36	BRAG
	B A	8.5926	54	REDS
	B A B A	8.5814	43	BAMC
	B B B	8.3103	58	JACK
	В	8.2917	96	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - FLIGHT MEDICINE

PHASE=1 CLINIC=FLT MED

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES
CLINIC 1 FLT MED
SITE 2 BRAG POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 76

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	8.8667	30	BRAG
	Ä	8.6522	46	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - ELECTROCARDIOGRAM

PHASE=1 CLINIC=EKG

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

LEVELS CLASS **VALUES** CLINIC

EKG 3 JACK POLK REDS SITE

NUMBER OF OBSERVATIONS IN BY GROUP = 79

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	7.6316	19	JACK
	B A B	6.8298	47	POLK
	B B	5.9231	13	REDS

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - OCCUPATIONAL THERAPY

PHASE=1 CLINIC=OT

GENERAL LINEAR MODELS PROCEDURE

3

CLASS LEVEL INFORMATION

LEVELS CLASS

VALUES

CLINIC

OT

SITE

BRAG JACK POLK

NUMBER OF OBSERVATIONS IN BY GROUP = 102

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	Ą	8.9524	42	POLK
	A A	8.8857	35	JACK
	В	7.8800	25	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PHYSICAL THERAPY

PHASE=1 CLINIC=PT

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES

CLINIC

1 PT

SITE

5 BAMC BRAG JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 234

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	23	BAMC
	A A	8.9245	53	JACK
	A A	8.8293	82	REDS
	A A	8.7333	45	POLK
	В	7.2258	31	BRAG

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - COMMUNITY HEALTH NURS

PHASE=1 CLINIC=CHN

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES

CLINIC 1 CHN

SITE 3 JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 92

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A A	9.0000	10	REDS
	A A A	8.9800	50	POLK
	Â	8.8125	32	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - PREVENTIVE MEDICINE

PHASE=1 CLINIC=PRE MED

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES
CLINIC 1 PRE MED
SITE 2 POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 31

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	10	REDS
	A A	8.9000	20	POLK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - OCCUPATIONAL HEALTH

PHASE=1 CLINIC=OH

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS

LEVELS VALUES

CLINIC

OH

SITE

3 JACK POLK REDS

NUMBER OF OBSERVATIONS IN BY GROUP = 155

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	50	POLK
	A A	8.7647	68	REDS
	A A	8.7297	37	JACK

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - CHEMOTHERAPY, PHASE II

PHASE=2 CLINIC=CHEMO

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION CLASS LEVELS VALUE VALUES

CLINIC 1 CHEMO BAMC CAMP SITE

NUMBER OF OBSERVATIONS IN BY GROUP = 63

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	31	CAMP
	В	4.4063	32	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - SOCIAL WORK, PHASE II

PHASE=2 CLINIC=SOC WORK

GENERAL LINEAR MODELS PROCEDURE CLASS LEVEL INFORMATION CLASS LEVELS VALUES

CLINIC 1 SOC WK SITE 2 BAMC CAMP

NUMBER OF OBSERVATIONS IN BY GROUP = 25

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.0000	10	CAMP
	Â	8.0000	15	BAMC

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES - FAMILY ADVOCACY, PHASE II

PHASE=2 CLINIC=FAM ADV

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS LEVELS VALUES
CLINIC 1 FAM ADV
SITE 2 BAMC CAMP

NUMBER OF OBSERVATIONS IN BY GROUP = 77

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	A	9.00000	25	BAMC
	Â	8.98077	52	CAMP

APPENDIX F - STATISTICALLY SIGNIFICANT DIFFERENCES-SPEECH PATHOLOGY, PHASE II

PHASE=2 CLINIC=SPEECH

GENERAL LINEAR MODELS PROCEDURE CLASS LEVEL INFORMATION

CLASS LEVELS VALUES
CLINIC 1 SPEECH
SITE 2 BAMC CAMP

NUMBER OF OBSERVATIONS IN BY GROUP = 56

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SCORE ALPHA=0.05

DUNCAN	GROUPING	MEAN	N	SITE
	Α	9.0000	36	BAMC
	В	8.1000	20	CAMP